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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,724	04/02/2004	David Mottier	250365US2	9466

22850 7590 04/24/2007  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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LAM, KENNETH T

ART UNIT	PAPER NUMBER
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2609

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/24/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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# Office Action Summary

Application No.

10/815,724

Applicant(s)

MOTTIER ET AL.

Examiner

Kenneth Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 4-2-04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4-2-04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-12 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites method characterized in that at least one predetermined equalization value is also representative of a Doppler effect resulting from a movement of the mobile transceiver and adversely affecting the communication conditions within the communication channel. It is unclear to the examiner that what is affecting the communication conditions within the communication channel. Examiner will take the position that the Doppler effect is the answer and will construe as such for the rest of the examination.

Claims 2-6 are dependent on rejected base claim 1, therefore they are also rejected.

Claims 7-12 are rejected for the same reason as stated in claim 1 above.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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4. Claim 13 is rejected under 35 U.S.C 101 because the claimed invention is directed to non-statutory subject matter.

Claim 13 recites a "signal", which falls under the Judicial Exception of a natural phenomenon. See Interim Guidelines, Annex IV (c).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent; or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English.

6. Claims 1-13 rejected under 35 U.S.C. 102(e) as being anticipated by Smee et al., US 6,983,125 B2.

Re Claim 1, Smee disclosed a method for transmitting data in a telecommunication system including at least a first and a second transceiver (Base Station 120, User Terminal 122, figure 1B) linked together by means of at least one communication channel (wireless channel 110, figure 1B), at least one of with

transceivers being mobile (User terminal **122**, can, for example, represent a cellular telephone being used by a passenger in an automobile, column 4 line 53), which method includes the following steps:

- a spreading step (spreading is an inherent function in Code Division Multiple Access (CDMA), column 1 line 15) for spreading said data over a plurality of components, and
- an equalization step (Adaptive equalizers can also be employed at the receiver to cancel noise and interference in multipath environments, column 2 line 9) in the course of which each of the components resulting from the spreading step is multiplied by a predetermined equalization value is also representative of a Doppler effect (The Doppler frequency is reflective of the rate of change of the communications channel, column 3 line 17) resulting from a movement of the mobile transceiver and adversely affecting the communication conditions within the communication channel.

Re Claim 2, the method as claimed in claim 1, in which, each predetermined equalization value including a parameter representative of a noise level in said communication channel, said predetermined equalization value further includes an additional noise parameter representative of said Doppler effect; In Smee, the equalizer length is adjusted based on an estimate of the Doppler frequency between the devices communicating over the channel (column 3 line 15).

Re Claim 3, a method as claimed in claim 2, in which, the communication conditions within the communication channel being modeled by means of a study of the effects of said conditions on at least on incoming signal previously received by the mobile transceiver through said communication channel (in Smee, the equalizer length is increased as the Doppler frequency decreases, and conversely, the equalizer length is decreased as the Doppler frequency increases, column 3 line 23),

the additional noise parameter representative of said Doppler effect features a variance intended to increase with an amount of time elapsed since said incoming signal has been received by the mobile transceiver (in Smee, the Doppler frequency measured between the base station and automobile will be reflective of the rate of change of the multipath interference, column 4 line 57; furthermore, it is understood that the rate of change of the interference represents the variance in the Doppler effect).

Re Claim 4, a method as claimed in claim 2, in which, the communication conditions within the communication channel being modeled by means of a study of the effects of said conditions on at least one incoming signal previously received by the mobile transceiver through said communication channel, the additional noise parameter representative of said Doppler effect features a constant variance whose value has been averaged over a time interval between two successive incoming signals (in Smee, various adaptive algorithms can be used to adjust the filter coefficients, such as the LMS algorithm or the RLS algorithm, column 5 line 55. It is

understood that these algorithms are used for average calculation to adjust the equalizer. In such case, the average is calculated based on incoming received signals).

Re Claim 5, a method as claimed in claim 1, in which the equalization step is intended to be carried out by the mobile transceiver on components of a signal intended to be transmitted by said mobile transceiver (in Smee, the user terminal **122** employs adaptive equalizer **108** in transceiver **106B** whose length is adjusted to account for the varying multipath, column 4 line 61).

Re Claim 6, a method as claimed claim 1, in which the equalization step is intended to be carried out by the mobile transceiver on components of a signal received by said mobile transceiver (in Smee, the base station **120** and user terminal **122** both include a transceiver **106** for full-duplex communication, wherein transceiver **106** includes both transmitter and receiver sections, column 4 line 43, combine with the prior art cited in claim 5 rejection, the transceiver handle the equalization step on transmitted and received signal).

Re Claims 7-12, which recite "a telecommunication system" corresponding to the method as recited in claims 1-6. The method of claims 1-6 would inherently necessitate a system of claims 7-12 to carry out said method. Thus, the corresponding "system" as claimed is hereby rejected with respect to claims 1-7. Furthermore, Smee also discloses an apparatus (figs. 1A-1B).

Re Claim 13, which recites "a radio signal" resulted from the method of claim 1. Thus, it has been analyzed and rejected with respect to claim 1. Furthermore, Smee pertains to a CDMA communications system and method, thus it necessarily involves a radio signal (col. 4, lines 1-8).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Qiu, US 6,785,351 B1

A method is provided for determining the Doppler frequency shift that occurs in the reception of a communication signal when the relative velocity between the transmitter and receiver is unknown. By estimating the channel characteristics and measuring the channel response to known transmitted data bits, a measure of the Doppler frequency is determined according to the method of the invention. In particular, a good estimate of the Doppler frequency shift is obtained based on a second order statistic of the fading process for the channel response to the known transmitted data bits. The approach is simple and general. It applies for any system such as WCDMA and CDMA 2000 when Doppler frequency is needed.

- Smee et al., US 6,983,125 B2



Systems and methods according to the present invention are described for adjusting the number of taps in an adaptive equalizer over time as the rate of change of a communications channel varies. The number of taps or "equalizer length" is adjusted based on an estimate of the Doppler frequency between the devices communicating over a channel. The Doppler frequency is reflective of the rate of change of the communications channel. Greater Doppler frequencies indicate a more quickly varying channel, and vice versa. It is therefore desirable to change the equalizer length (by adding or dropping taps) based on a measurement of the Doppler frequency. Equalizer length is increased as the Doppler frequency decreases. Conversely, equalizer length is decreased as the Doppler frequency increases. This enables the equalizer to achieve a better compromise between the competing goals of adaptation speed (less taps) and ISI reduction (more taps).

- Miller et al., US 6,965,753 B1

Apparatus for Doppler correction in a wireless communications system, including a first frequency synthesizer for generating a carrier signal oscillating at a rate responsive to a first input, a counter coupled to the first input for generating a Doppler compensation signal, the counter having a clock input, and a second frequency synthesizer coupled to the clock input for generating a clock signal oscillating at a rate responsive to a rate input. The rate input is adjusted over time according to a predetermined sequence so that the • Doppler compensation signal compensates for the Doppler effect

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experienced by, for example, ground-to-satellite communications in a satellite communications system.

- Ostberg, US 6,850,505 B1

A channel estimate generator generates a plurality of channel estimates and a Doppler frequency estimator uses two or more channel estimates to generate a Doppler frequency estimate. The Doppler frequency estimator generates the Doppler frequency estimate by calculating the normalized distance between two consecutive channel estimates. A receiver uses the Doppler frequency estimate to either (1) adjust the receiver, (2) estimate the velocity of the receiver, (3) determine whether it is necessary to search for new paths, or (4) predict or track new paths. The receiver can use a moving average of Doppler frequency estimates or a weighted combination of Doppler frequency estimates from different paths of a received signal to calculate the Doppler frequency estimate.

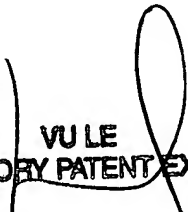
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Lam whose telephone number is (571) 270-1862. The examiner can normally be reached on Mon - Thu 7:30 am - 5:00 pm EST ALT Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on (571) 272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kenneth Lam

  
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SUPERVISORY PATENT EXAMINER